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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,917	09/24/2003	Volker Haerle	12406-055001	6535

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EXAMINER	
PATEL, ASHOK	
ART UNIT	**PAPER NUMBER**
2879	

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/670,917	HAERLE ET AL.	
	Examiner	Art Unit	
	Ashok Patel	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *17-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Indicated allowability of claims 1-5 and 7-16 is withdrawn in view of newly found Prior Art. An action on merits including claims 1-5 and 7-16 is as follows.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 5, 7, 8 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki (USPN 6433487).

As to claims 1, 2, 5, 7, 15, Yamazaki et al disclose applicant's claimed (organic EL) display device (all Figures) including: a first array of individual display elements and a second array of a thin (0.5 μm, col. 6, lines 1-2) layer of control transistors (202) for controlling one of the display elements, wherein the control transistors include a boron nitride semiconductor material (col. 5, line 12 to col. 6, line 32). Since Yamazaki discloses boron nitride semiconductor

material for the control transistor, as claimed by applicant, a band gap in Yamazaki's disclosed display device would also be inherently sufficiently large (larger than 3eV) to be transparent in the visible spectral range.

As to claim 16, if applicant disputes Examiner's rejection of claim 15 under 35 U.S.C. 102, then rejection of claim 15 under 35 U.S.C. 102 alternatively would apply automatically.

4. Claim 16 is rejected under 35 U.S.C. 102(e) as being anticipated by Yamazaki (USPN 6433487).

If applicant believes that each control transistor in Yamazaki's device does not control exactly one of the individual display elements, then it means that the control transistor in Yamazaki's device controls more or several display elements, as recited in applicant's claim 16.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 4, 5, 7, 8, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu (USPN 5989752, of record) in view of Yamazaki (USPN 6,433,487).

Referring to claim 1, Chiu discloses a display device (see at least Figs. 1 and 14 and related description) in the specification) including: a first array of individual display elements (see Fig. 11 and 14), and a second array of control transistors (TFT) for the display element (see at least Figs. 1 and 4), wherein the TFTS include a semiconductor material with a band gap sufficiently large to be transparent in the visible spectral range (see Col. 8, lines 4-7 and 40-41).

Chiu doe not disclose the semiconductor control transistor including boron nitride material, as claimed by applicant.

Yamazaki is cited for showing a display device including the semiconductor control transistor made of boron nitride material, as mentioned in this office action. Yamazaki disclose that use of boron nitride effectively prevents heat degrading of EL and TFT layers.

Therefore, it would have been obvious to one of ordinary skill in the art to modify Chiu's display device including the control transistor made of boron nitride semiconductor material, as taught by Yamazaki for effectively preventing the heat degrading of EL and TFT layers.

Referring to claim 4, Chiu discloses the display elements including liquid crystal elements (see at least Col. 5, line 4-5).

Referring to claim 5, Chiu discloses the band gap of the semiconductor material of the TFT being larger than 3 ev (see Col. 8, lines 4-7).

Referring to claim 7, Chiu discloses the TFT being formed in one or more thin layers of semiconductor material.

As to claim 8, Chiu discloses the claimed invention except for the limitation of the semiconductor layer having a thickness in the range of 0.5 gm to 20 gm. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering optimum or workable thickness, i.e. a change is size, involves only routine skill in the art. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a thickness in the range of 0.5 gm to 20 gm, since such a modification would have involve a mere change in the shape of a component.

As to claim 15, Chiu discloses each TFT controlling one of the individual display elements (see Figs. 1, 11 and 14, and their respective descriptions).

As to claim 16, Chiu discloses the claimed invention except for the limitation of the TFT controlling several display elements. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a TFT which controls either one or a plurality of display elements (pixels) according to the preferred method of driving the display, which is considered to be within the level of ordinary skill in the art. Further, one of ordinary skill in the art would entertain the idea of controlling a plurality of pixels with a single TFT when a whole image is intended to be displayed instead of a single pixel.

7. Claims 1-3 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu (USPN 5989752, of record) in view of Yamazaki, (USPN 5989752).

Regarding claims 1 and 2, Yamada discloses an organic EL display device (Figs. 3-8) including: a first array of individual organic EL display elements (Fig, 3), and a second array of control transistors (TFT) for the display element (at least Fig. 4).

Yamada does not disclose material of the control transistor including boron nitride, as claimed by applicant.

As mentioned earlier in this office action, Yamazaki discloses a display device including the control transistor made of boron nitride semiconductor material for preventing the heat degrading of EL and TFT layers.

Therefore, it would have been obvious to one of ordinary skill in the art to modify Yamada's display device including the control transistor made of boron nitride semiconductor material, as taught by Yamazaki for effectively preventing the heat degrading of EL and TFT layers.

As to claim 3, Yamada discloses the organic EL element including a cathode 67, an ETL 65, an organic light emitting layer 64, a HTL 63 and an anode 61.

As to claim 9, Yamada discloses the array of display elements containing multiple sub-arrays, each sub-array configured for showing various colors (see Fig. 3 and respective description).

As to claim 10, Yamada discloses each sub-array configured for showing R, G and B (see Fig. 3).

As to claim 11, Yamada discloses the multiple sub-array being disposed in the same plane on a carrier substrate (see Fig. 48 in view of Fig. 3).

8. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu (USPN 5989752, of record) in view of Yamazaki, (USPN 5989752) and further in view of Forrest et al (US PgPub 2001/000005, of record).

As to claim 12, Yamada does not discloses the display device including sub-arrays being disposed in stacked layers in multiple planes. Yamada discloses the sub-arrays in a same plane.

Forrest discloses an organic EL display having stacked layers in multiple planes with the purpose of providing a high definition multicolor display which is highly reliable, compact, efficient and requires low drive voltages (see at least paragraphs (0014) and (001 61.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Yamada's display device in view of Yamazaki, as mentioned earlier in this office, including the sub-arrays in stacked layers in multiple planes, as disclosed by Forrest, to provide a high definition multicolor display which is highly reliable, compact, efficient and requires low drive voltages.

As to claim 13, Yamada-Forrest discloses the sub-arrays being disposed on its own carrier substrate ('005, Fig. 14A).

As to claim 14, Forrest-Forrest discloses the carrier substrate 50 being made of glass.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Inukai et al, McCormick et al, Koyama et al and Yamazaki et al each are cited for showing a display device including semiconductor material including boron nitride.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok Patel whose telephone number is 571-272-2456. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ashok Patel
Primary Examiner
Art Unit 2879